GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

UNSTARRED QUESTION NO:2882
ANSWERED ON:03.08.2016
Thorium Based Nuclear Power Programmes
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Will the Minister of ATOMIC ENERGY be pleased to state:

(a)the present status of installation of thorium based three stage nuclear power programme;

(b)whether collaborations have been made with other countries for Research and Development of thorium based nuclear reactors and if so, the details thereof and the outcome thereto;

(c)the details of funds being allotted for Research and Development in thorium based reactors; and

(d)the future prospects of thorium based nuclear programmes in the country?

Answer

THE MINISTER OF STATE FOR, PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND PRIME MINISTER''S OFFICE (DR. JITENDRA SINGH):

(a)The Government is committed to implement the third stage of Indian Nuclear Power Programme, after an adequate nuclear installed capacity has been reached based on Fast Breeder Reactors to be set up in the second stage. On account of non-existence of any fissile isotope in naturally occurring Thorium (unlike that existing in Uranium), commercial utilisation of Thorium, on a significant scale, can begin only when abundant supply of either Uranium-233 or Plutonium resources are available. Upon the launch, followed by a significant growth of a thorium based nuclear programme in this manner,it could be possible to maintain the achieved level of nuclear power programme with thorium alone, without additional demands on uranium or plutonium resources. Therefore, considering the meagre domestic uranium resources in the country, it is feasible to start a significant commercial level Thorium based reactor programme in our country only after an adequate inventory of Plutonium and Uranium-233 becomes available from our Fast Breeder Reactors, comprising the second stage of Indian nuclear programme. Accordingly, the utilisation of Thorium as a practically inexhaustible energy source has been contemplated during the third stage of the Indian nuclear programme, which can be reached after a few decades.

Efforts are currently on to enlarge the present thorium related R&D work and activities to a bigger scale and towards development of technologies for shaping the third stage of our nuclear power programme.

(b)No, Sir.

(c)An amount of Rs.292 crore has been allocated for Thorium research from 2007 to 2019.

(d)The long term plan is to use thorium reactors to meet substantial percentage of energy demand of the country. The target of third stage of nuclear power programme is to deploy Thorium based reactors in large numbers that has potential to make the country independent as far as power is concerned. After attaining the required level of installed capacity in the third stage, it would be possible to maintain the achieved level of nuclear power programme with thorium alone, without additional demands on uranium or plutonium resources. As a long term plan, the department is working on technology development for molten salt breeder reactors where Thorium will be used as fuel. In addition long term plan also includes development of High Temperature Reactors (HTRs) with Thorium based fuel for producing hydrogen as an alternate transport energy carrier.

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